Pace Analytical Services, LLC
315 Chestnut Street
Virginia, MN 55792
(218) 742-1042

December 22, 2016

Tom Moe
USS Corporation
P.O. Box 417
8771 Park Ridge Dr
Mountain Iron, MN 55768

RE: Project: NPDES-LINE 3
Pace Project No.: 1280459

Dear Tom Moe:
Enclosed are the analytical results for sample(s) received by the laboratory on December 14, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Melisa M Woods
melisa.woods@pacelabs.com
Project Manager

Enclosures

cc: Cory Hertling
Terri Sabetti, NTS

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CERTIFICATIONS

Project: NPDES-LINE 3
Pace Project No.: 1280459

Virginia Minnesota Certification ID's

315 Chestnut Street, Virginia, MN 55792
Alaska Certification UST-107
Alaska Certification UST-107
Alaska Certification #MN01084
Arizona Department of Health Certification #AZ0785
Minnesota Dept of Health Certification #: 027-137-445
North Dakota Certification: # R-203
Wisconsin DNR Certification # : 998027470
WA Department of Ecology Lab ID# C1007
Nevada DNR #MN010842015-1
Oklahoma Department of Environmental Quality

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: NPDES-LINE 3
Pace Project No.: 1280459

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1280459001	**WS-002 Scrubber Make-Up**	Water	12/14/16 08:50	12/14/16 17:00
1280459002	**WS-003 Thickner Overflow**	Water	12/14/16 08:40	12/14/16 17:00

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SAMPLE ANALYTE COUNT

Project: NPDES-LINE 3
Pace Project No.: 1280459

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
1280459001	**WS-002 Scrubber Make-Up**	EPA 200.7	MAR	3	PASI-V
		EPA 300.0	DMB	1	PASI-V
1280459002	**WS-003 Thickner Overflow**	EPA 200.7	MAR	3	PASI-V
		EPA 300.0	DMB	1	PASI-V

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ANALYTICAL RESULTS

Project: NPDES-LINE 3
Pace Project No.: 1280459

Sample: WS-002 Scrubber Make-Up **Lab ID: 1280459001** Collected: 12/14/16 08:50 Received: 12/14/16 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP, Lab Filtered	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**110**	mg/L	5.0	0.29	10	12/19/16 12:09	12/20/16 13:55	7440-70-2	
Magnesium, Dissolved	**224**	mg/L	5.0	0.67	10	12/19/16 12:09	12/20/16 13:55	7439-95-4	
Total Hardness, Dissolved	**1200**	mg/L	100	50.0	10	12/19/16 12:09	12/20/16 13:55		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**809**	mg/L	20.0	10.0	10		12/19/16 16:50	14808-79-8	

Sample: WS-003 Thickner Overflow **Lab ID: 1280459002** Collected: 12/14/16 08:40 Received: 12/14/16 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 MET ICP, Lab Filtered	Analytical Method: EPA 200.7 Preparation Method: EPA 200.7								
Calcium, Dissolved	**650**	mg/L	5.0	0.29	10	12/19/16 12:09	12/20/16 13:59	7440-70-2	
Magnesium, Dissolved	**154**	mg/L	5.0	0.67	10	12/19/16 12:09	12/20/16 13:59	7439-95-4	
Total Hardness, Dissolved	**2260**	mg/L	100	50.0	10	12/19/16 12:09	12/20/16 13:59		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**1570**	mg/L	40.0	20.0	20		12/19/16 17:12	14808-79-8	

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QUALITY CONTROL DATA

Project: NPDES-LINE 3
Pace Project No.: 1280459

QC Batch: 102434 Analysis Method: EPA 200.7
QC Batch Method: EPA 200.7 Analysis Description: 200.7 MET Dissolved
Associated Lab Samples: 1280459001, 1280459002

METHOD BLANK: 407142 Matrix: Water
Associated Lab Samples: 1280459001, 1280459002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium, Dissolved	mg/L	ND	0.50	0.029	12/20/16 12:31	
Magnesium, Dissolved	mg/L	ND	0.50	0.067	12/20/16 12:31	

LABORATORY CONTROL SAMPLE: 407143

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium, Dissolved	mg/L	50	50.1	100	85-115	
Magnesium, Dissolved	mg/L	50	50.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 407144 407145

Parameter	Units	1280529001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium, Dissolved	mg/L	21.7	50	50	70.0	70.8	97	98	70-130	1	20	
Magnesium, Dissolved	mg/L	4.8	50	50	53.9	54.6	98	100	70-130	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 407146 407147

Parameter	Units	1280427001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium, Dissolved	mg/L	43.1	50	50	92.0	92.2	98	98	70-130	0	20	
Magnesium, Dissolved	mg/L	61.4	50	50	110	111	97	98	70-130	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: NPDES-LINE 3
Pace Project No.: 1280459

QC Batch: 102480 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 1280459001, 1280459002

METHOD BLANK: 407335 Matrix: Water
Associated Lab Samples: 1280459001, 1280459002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	ND	2.0	1.0	12/19/16 14:41	

LABORATORY CONTROL SAMPLE: 407336

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	50	48.7	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 407337 407338

Parameter	Units	1280401003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	29.5	50	50	81.7	82.1	104	105	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 407339 407340

Parameter	Units	1280493002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	21.7	500	500	543	543	104	104	90-110	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: NPDES-LINE 3
Pace Project No.: 1280459

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-V Pace Analytical Services - Virginia

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NPDES-LINE 3
Pace Project No.: 1280459

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
1280459001	**WS-002 Scrubber Make-Up**	EPA 200.7	102434	EPA 200.7	102463
1280459002	**WS-003 Thickner Overflow**	EPA 200.7	102434	EPA 200.7	102463
1280459001	**WS-002 Scrubber Make-Up**	EPA 300.0	102480		
1280459002	**WS-003 Thickner Overflow**	EPA 300.0	102480		

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Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

WO# : 1280459

PM: MMW Due Date: 12/29/16

CLIENT: USS CORP

Page 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	USS Corporation	Report To:	Tom Moe	Attention:	
Address:	P.O. Box 417	Copy To:		Company Name:	
Mt. Iron, MN 55768				Address:	
Email:		Purchase Order #:		Pace Quote:	
Phone:	Fax:	Project Name:	NPDES-LINE 3 Wkly	Pace Project Manager:	heather.zika@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	

SAMPLE ID
One Character per box.
(A-Z, 0-9 / , -)
Sample ids must be unique

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Requested (Y/N)	LAB FILTERED: SO4	Lab FILTERED: Ca,Mg,Hard	Residual Chlorine (Y/N)	
1	WS-002 Scrubber Make-Up	WT		12/14/16	08:50	12/14/16	08:50												X	X		LF,LF
2	WS-003 Thickner Overflow	WT		12/14/16	08:40	12/14/16	08:40												X	X		LF,LF
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Paul Mattila	12/14/16	16:00 17:00		12/14/16	17:00	2.3	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Paul Mattila

SIGNATURE of SAMPLER: Paul Mattila DATE Signed: 12/14/16

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 23Feb2015 Page 1 of 1
	Document No.: F-VM-C-001-Rev.09	Issuing Authority:

WO# : 1280459

1280459

Sample Condition Upon Receipt

Client Name: VTS

Project #:

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☑ Client ☐ Commercial ☐ Pace ☐ Other:

Tracking Number:

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No Seals Intact? ☐ Yes ☑ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other: Temp Blank? ☑ Yes ☐ No

Thermometer Used: ☑ 140792808 Type of Ice: ☑ Wet ☐ Blue ☐ None ☑ Samples on ice, cooling process has begun

Cooler Temp Read °C: 2.0 Cooler Temp Corrected °C: 2.3 Biological Tissue Frozen? ☐ Yes ☐ No ☑ NA

Temp should be above freezing to 6°C Correction Factor: +0.3 Date and Initials of Person Examining Contents: CL 12-15-16

Comments:

Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes.	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved containers.
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation will be checked and documented in the pH logbook.	☐ Yes	☐ No	☑ N/A	See pH log for results and additional preservation documentation
Headspace in Methyl Mercury Container	☐ Yes	☐ No	☑ N/A	13.
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION Field Data Required? ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

FECAL WAIVER ON FILE Y N TEMPERATURE WAIVER ON FILE Y N

Project Manager Review: Date: 12/15/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)